

FIG. 1

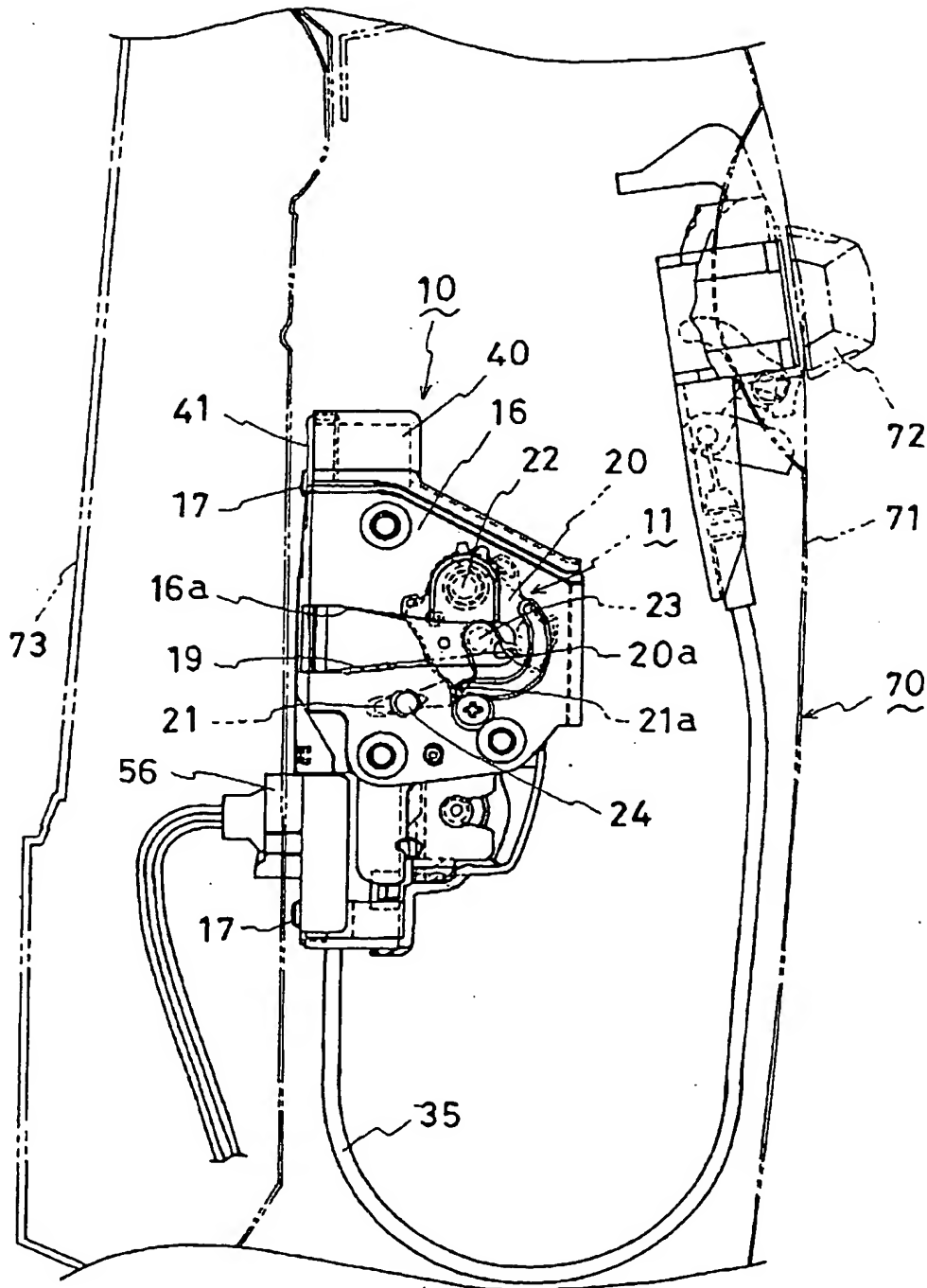




FIG. 3

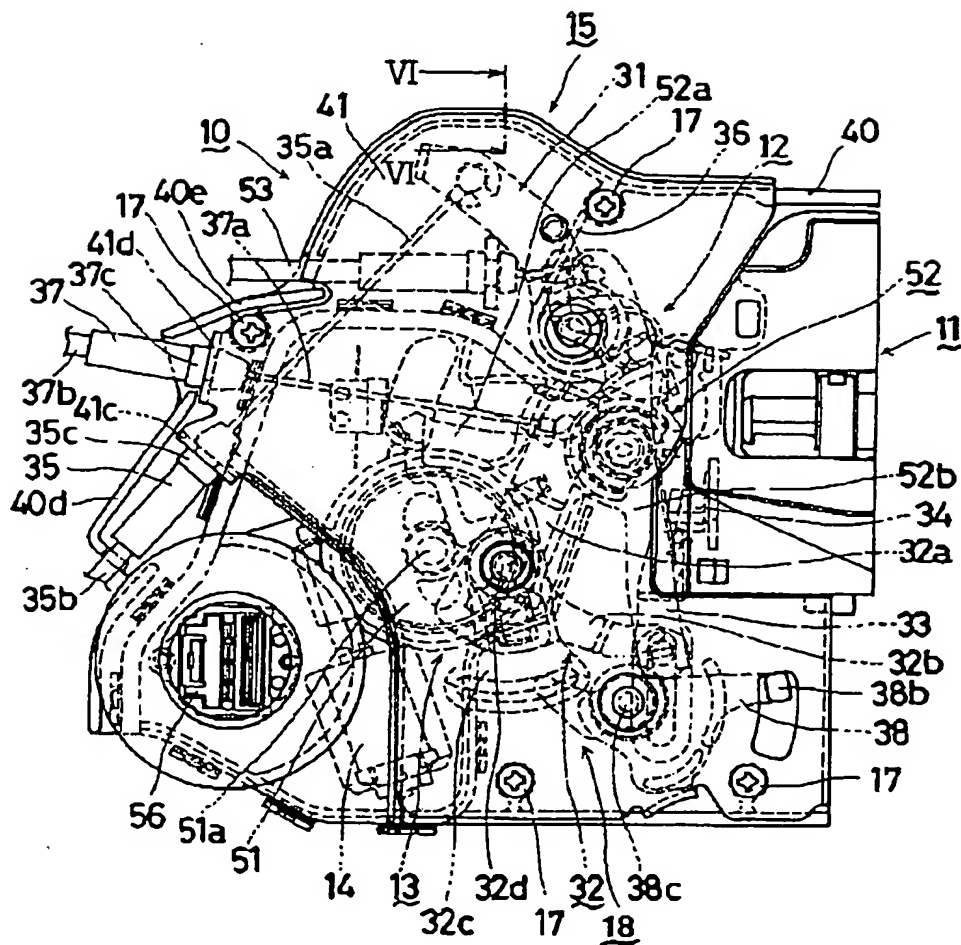


FIG. 4

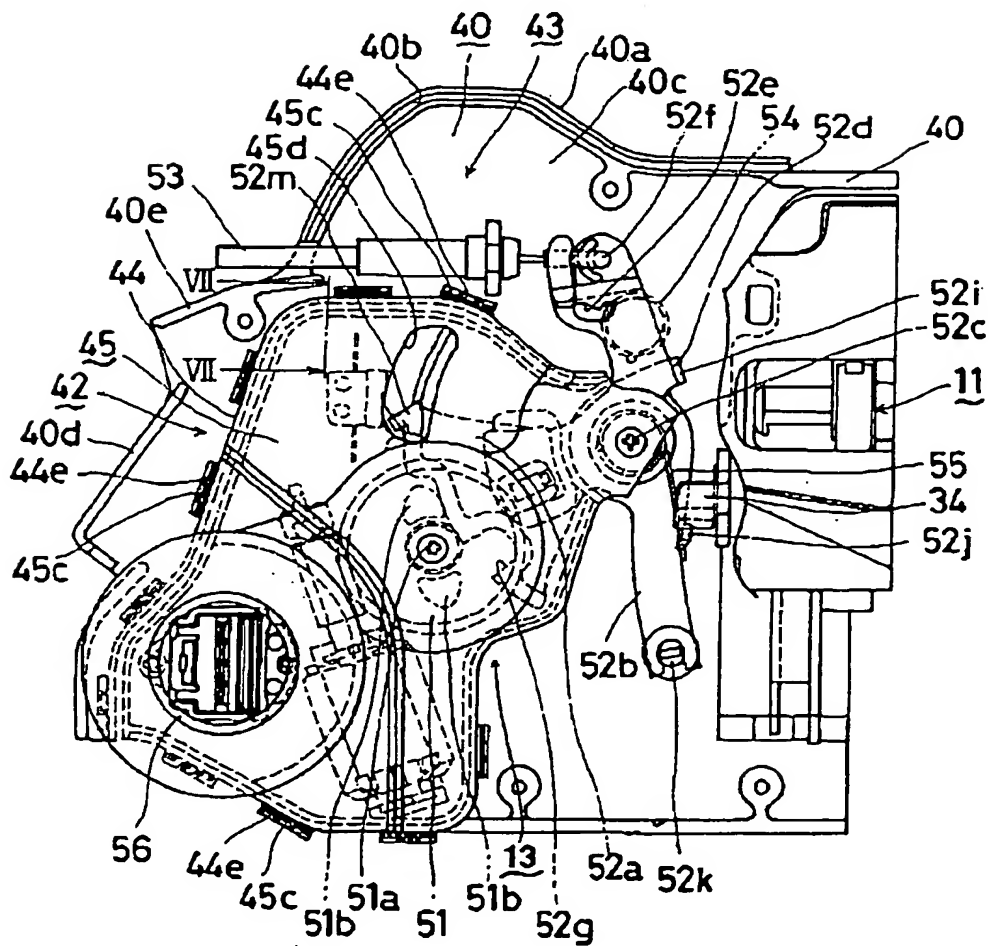


FIG. 5

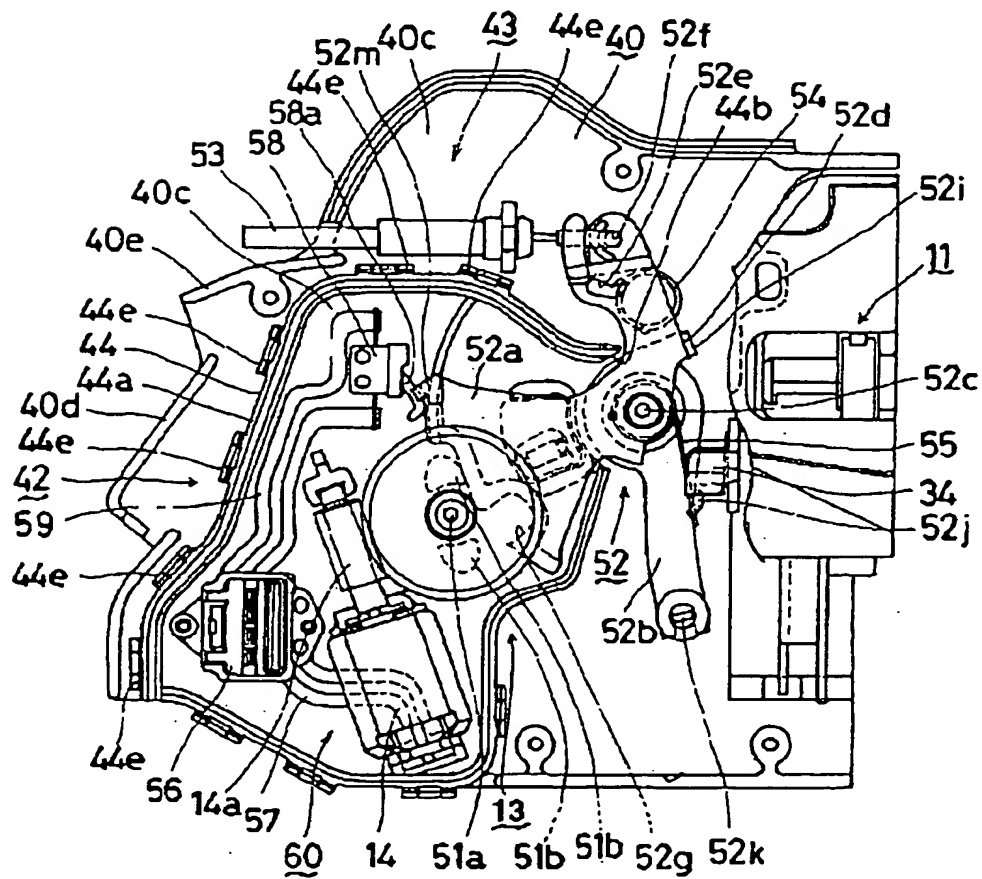


FIG. 6

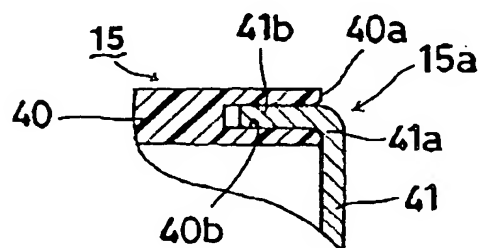


FIG. 7

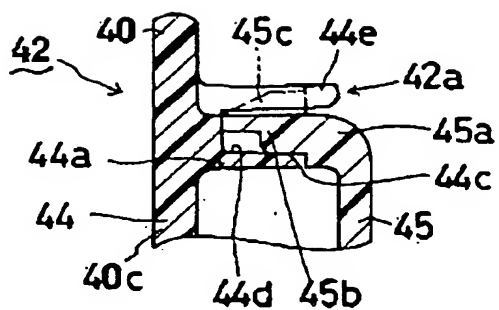


FIG. 8

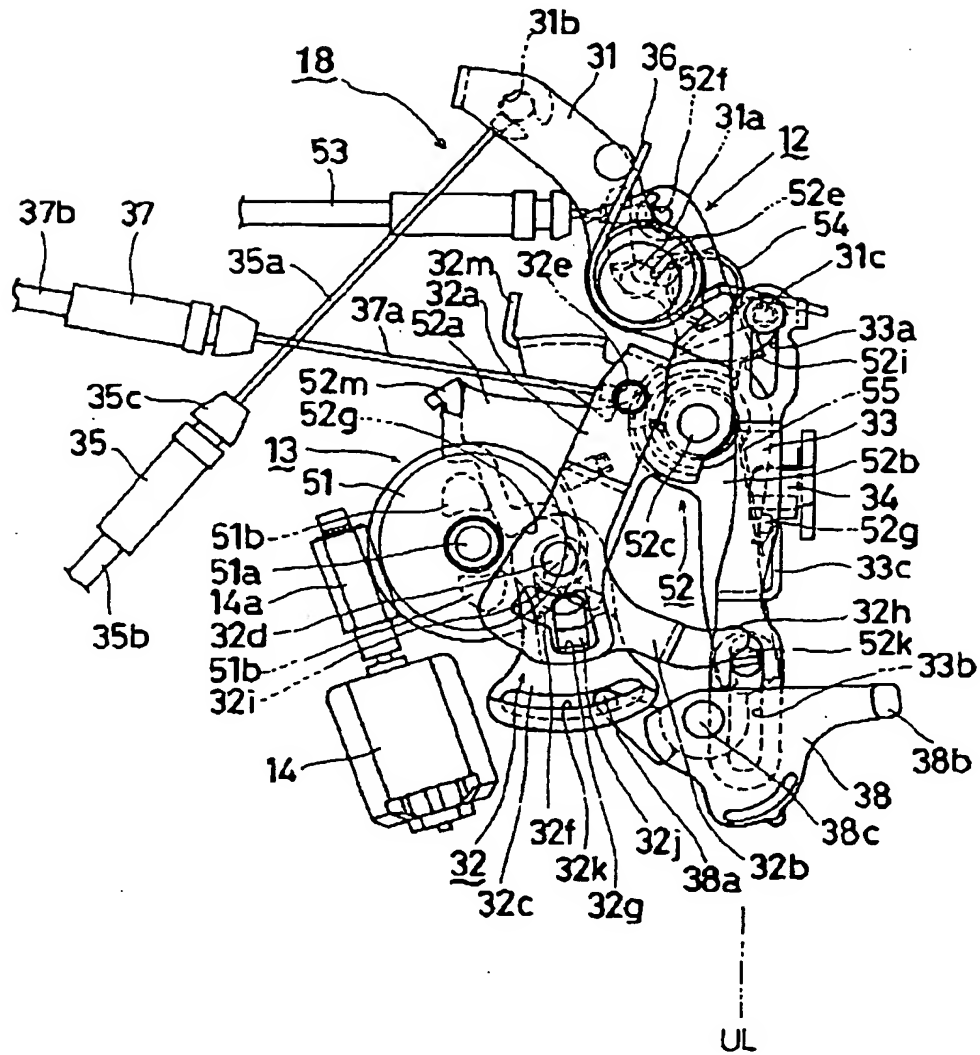


FIG. 9

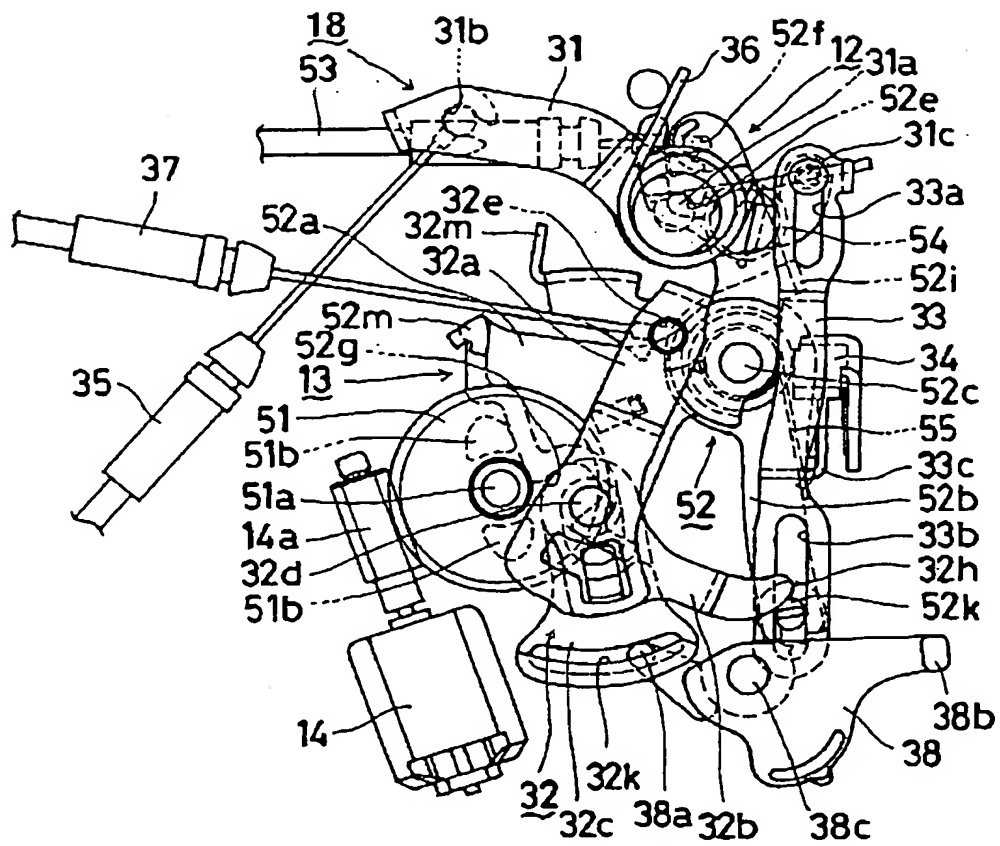




FIG. 10

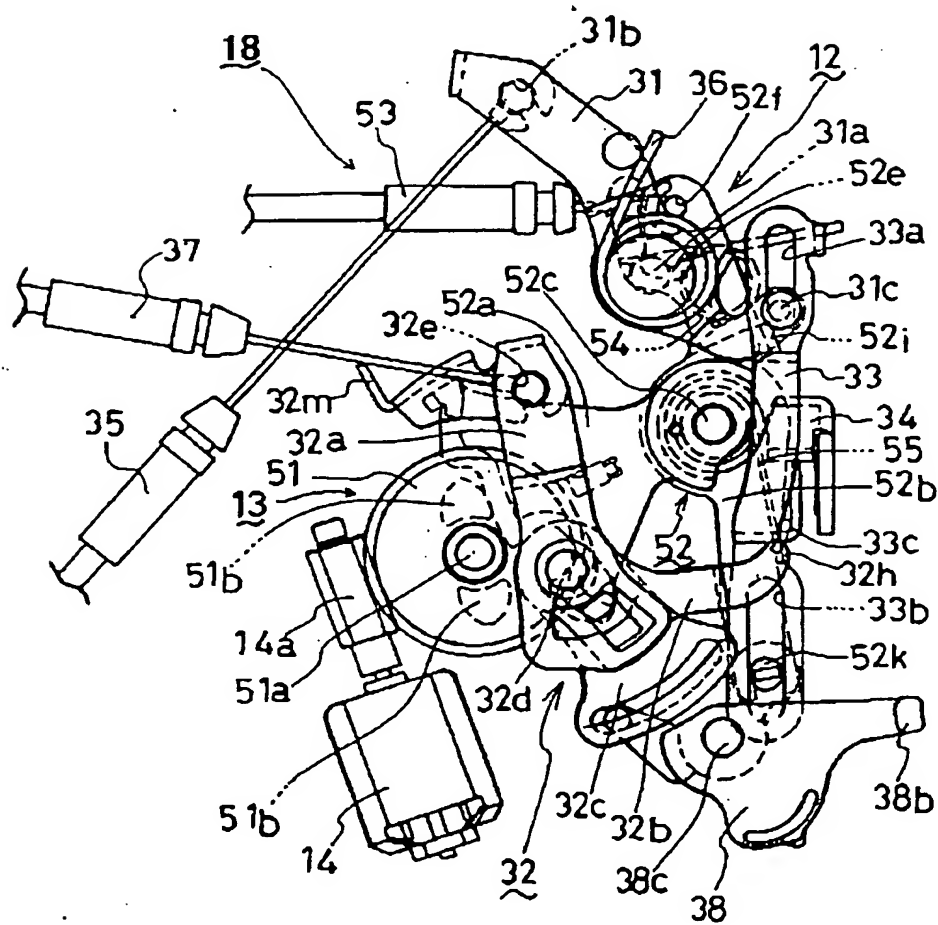
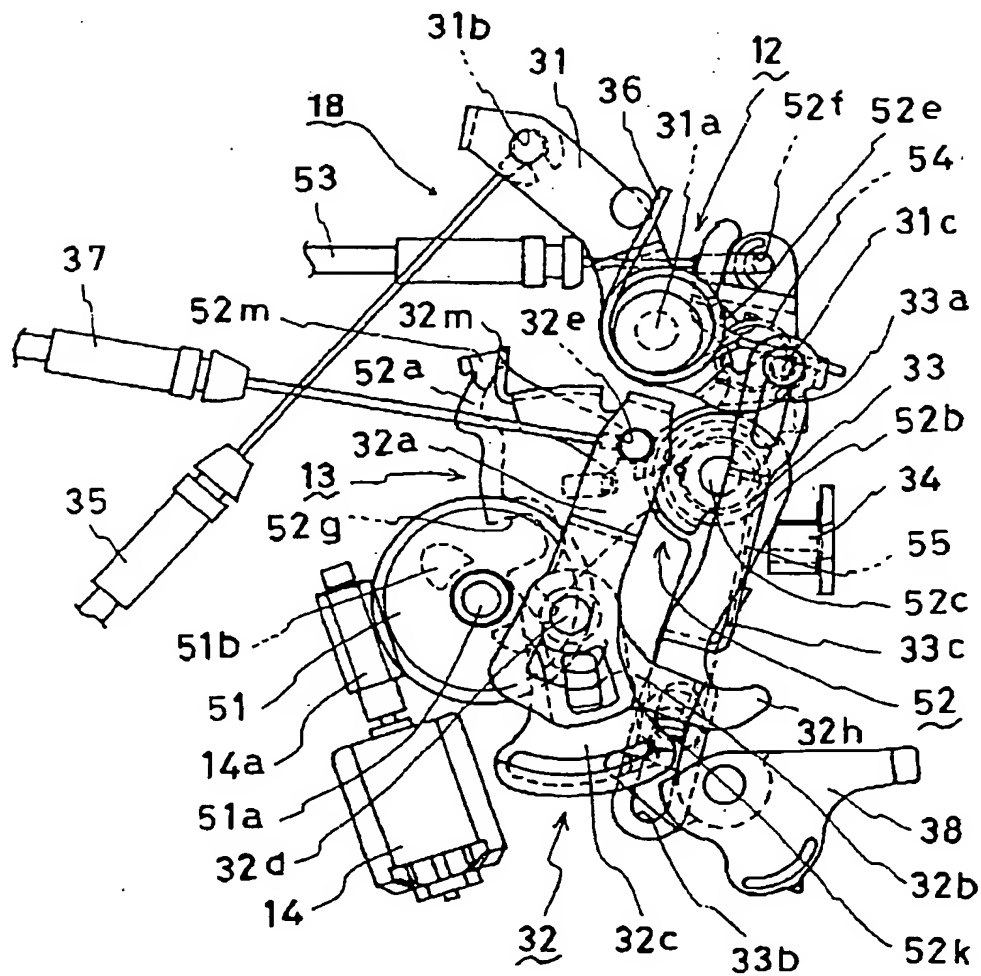


Fig. 1 is a perspective view of a vehicle engine assembly. The assembly includes a cylinder block (12) and a cylinder head (14). A piston (16) is shown in a cross-sectional view, connected to a crankshaft (18) by a connecting rod (20). The crankshaft (18) is shown in a cross-sectional view, with a crank pin (22) and a crank web (24). The piston (16) has a piston crown (26) and a piston skirt (28). The cylinder head (14) has a valve train (30) and a water pump (32). The water pump (32) is driven by a belt (34) and a pulley (36). The belt (34) is also driven by a pulley (38) on the crankshaft (18). The water pump (32) has a pump housing (40) and a pump impeller (42). The pump impeller (42) is connected to a pump shaft (44) and a pump bearing (46). The pump bearing (46) is supported by a pump housing (40) and a pump shaft (44). The pump housing (40) has a pump inlet (48) and a pump outlet (50). The pump inlet (48) is connected to a water inlet (52) and the pump outlet (50) is connected to a water outlet (54). The water inlet (52) has a water filter (56) and a water strainer (58). The water outlet (54) has a water hose (60) and a water nozzle (62). The water hose (60) is connected to a water pump (64) and the water nozzle (62) is connected to a water spray (66). The water spray (66) is directed at the piston crown (26) and the piston skirt (28). The water pump (64) is driven by a belt (68) and a pulley (70). The belt (68) is also driven by a pulley (72) on the crankshaft (18). The water pump (64) has a pump housing (74) and a pump impeller (76). The pump impeller (76) is connected to a pump shaft (78) and a pump bearing (80). The pump bearing (80) is supported by a pump housing (74) and a pump shaft (78). The pump housing (74) has a pump inlet (82) and a pump outlet (84). The pump inlet (82) is connected to a water inlet (86) and the pump outlet (84) is connected to a water outlet (88). The water inlet (86) has a water filter (90) and a water strainer (92). The water outlet (88) has a water hose (94) and a water nozzle (96). The water hose (94) is connected to a water pump (98) and the water nozzle (96) is connected to a water spray (100). The water spray (100) is directed at the piston crown (26) and the piston skirt (28). The water pump (98) is driven by a belt (102) and a pulley (104). The belt (102) is also driven by a pulley (106) on the crankshaft (18). The water pump (98) has a pump housing (108) and a pump impeller (110). The pump impeller (110) is connected to a pump shaft (112) and a pump bearing (114). The pump bearing (114) is supported by a pump housing (108) and a pump shaft (112). The pump housing (108) has a pump inlet (116) and a pump outlet (118). The pump inlet (116) is connected to a water inlet (120) and the pump outlet (118) is connected to a water outlet (122). The water inlet (120) has a water filter (124) and a water strainer (126). The water outlet (122) has a water hose (128) and a water nozzle (130). The water hose (128) is connected to a water pump (132) and the water nozzle (130) is connected to a water spray (134). The water spray (134) is directed at the piston crown (26) and the piston skirt (28). The water pump (132) is driven by a belt (136) and a pulley (138). The belt (136) is also driven by a pulley (140) on the crankshaft (18). The water pump (132) has a pump housing (142) and a pump impeller (144). The pump impeller (144) is connected to a pump shaft (146) and a pump bearing (148). The pump bearing (148) is supported by a pump housing (142) and a pump shaft (146). The pump housing (142) has a pump inlet (150) and a pump outlet (152). The pump inlet (150) is connected to a water inlet (154) and the pump outlet (152) is connected to a water outlet (156). The water inlet (154) has a water filter (158) and a water strainer (160). The water outlet (156) has a water hose (162) and a water nozzle (164). The water hose (162) is connected to a water pump (166) and the water nozzle (164) is connected to a water spray (168). The water spray (168) is directed at the piston crown (26) and the piston skirt (28). The water pump (166) is driven by a belt (170) and a pulley (172). The belt (170) is also driven by a pulley (174) on the crankshaft (18). The water pump (166) has a pump housing (176) and a pump impeller (178). The pump impeller (178) is connected to a pump shaft (180) and a pump bearing (182). The pump bearing (182) is supported by a pump housing (176) and a pump shaft (180). The pump housing (176) has a pump inlet (184) and a pump outlet (186). The pump inlet (184) is connected to a water inlet (188) and the pump outlet (186) is connected to a water outlet (190). The water inlet (188) has a water filter (192) and a water strainer (194). The water outlet (190) has a water hose (196) and a water nozzle (198). The water hose (196) is connected to a water pump (200) and the water nozzle (198) is connected to a water spray (202). The water spray (202) is directed at the piston crown (26) and the piston skirt (28). The water pump (200) is driven by a belt (204) and a pulley (206). The belt (204) is also driven by a pulley (208) on the crankshaft (18). The water pump (200) has a pump housing (210) and a pump impeller (212). The pump impeller (212) is connected to a pump shaft (214) and a pump bearing (216). The pump bearing (216) is supported by a pump housing (210) and a pump shaft (214). The pump housing (210) has a pump inlet (218) and a pump outlet (220). The pump inlet (218) is connected to a water inlet (222) and the pump outlet (220) is connected to a water outlet (224). The water inlet (222) has a water filter (226) and a water strainer (228). The water outlet (224) has a water hose (230) and a water nozzle (232). The water hose (230) is connected to a water pump (234) and the water nozzle (232) is connected to a water spray (236). The water spray (236) is directed at the piston crown (26) and the piston skirt (28). The water pump (234) is driven by a belt (238) and a pulley (240). The belt (238) is also driven by a pulley (242) on the crankshaft (18). The water pump (234) has a pump housing (244) and a pump impeller (246). The pump impeller (246) is connected to a pump shaft (248) and a pump bearing (250). The pump bearing (250) is supported by a pump housing (244) and a pump shaft (248). The pump housing (244) has a pump inlet (252) and a pump outlet (254). The pump inlet (252) is connected to a water inlet (256) and the pump outlet (254) is connected to a water outlet (258). The water inlet (256) has a water filter (260) and a water strainer (262). The water outlet (258) has a water hose (264) and a water nozzle (266). The water hose (264) is connected to a water pump (268) and the water nozzle (266) is connected to a water spray (270). The water spray (270) is directed at the piston crown (26) and the piston skirt (28). The water pump (268) is driven by a belt (272) and a pulley (274). The belt (272) is also driven by a pulley (276) on the crankshaft (18). The water pump (268) has a pump housing (278) and a pump impeller (280). The pump impeller (280) is connected to a pump shaft (282) and a pump bearing (284). The pump bearing (284) is supported by a pump housing (278) and a pump shaft (282). The pump housing (278) has a pump inlet (286) and a pump outlet (288). The pump inlet (286) is connected to a water inlet (290) and the pump outlet (288) is connected to a water outlet (292). The water inlet (290) has a water filter (294) and a water strainer (296). The water outlet (292) has a water hose (298) and a water nozzle (300). The water hose (298) is connected to a water pump (304) and the water nozzle (300) is connected to a water spray (306). The water spray (306) is directed at the piston crown (26) and the piston skirt (28). The water pump (304) is driven by a belt (308) and a pulley (310). The belt (308) is also driven by a pulley (312) on the crankshaft (18). The water pump (304) has a pump housing (314) and a pump impeller (316). The pump impeller (316) is connected to a pump shaft (318) and a pump bearing (320). The pump bearing (320) is supported by a pump housing (314) and a pump shaft (318). The pump housing (314) has a pump inlet (322) and a pump outlet (324). The pump inlet (322) is connected to a water inlet (326) and the pump outlet (324) is connected to a water outlet (328). The water inlet (326) has a water filter (330) and a water strainer (332). The water outlet (328) has a water hose (334) and a water nozzle (336). The water hose (334) is connected to a water pump (338) and the water nozzle (336) is connected to a water spray (340). The water spray (340) is directed at the piston crown (26) and the piston skirt (28). The water pump (338) is driven by a belt (342) and a pulley (344). The belt (342) is also driven by a pulley (346) on the crankshaft (18). The water pump (338) has a pump housing (348) and a pump impeller (350). The pump impeller (350) is connected to a pump shaft (352) and a pump bearing (354). The pump bearing (354) is supported by a pump housing (348) and a pump shaft (352). The pump housing (348) has a pump inlet (356) and a pump outlet (358). The pump inlet (356) is connected to a water inlet (360) and the pump outlet (358) is connected to a water outlet (362). The water inlet (360) has a water filter (364) and a water strainer (366). The water outlet (362) has a water hose (368) and a water nozzle (370). The water hose (368) is connected to a water pump (374) and the water nozzle (370) is connected to a water spray (376). The water spray (376) is directed at the piston crown (26) and the piston skirt (28). The water pump (374) is driven by a belt (378) and a pulley (380). The belt (378) is also driven by a pulley (382) on the crankshaft (18). The water pump (374) has a pump housing (384) and a pump impeller (386). The pump impeller (386) is connected to a pump shaft (388) and a pump bearing (390). The pump bearing (390) is supported by a pump housing (384) and a pump shaft (388). The pump housing (384) has a pump inlet (392) and a pump outlet (394). The pump inlet (392) is connected to a water inlet (396) and the pump outlet (394) is connected to a water outlet (398). The water inlet (396) has a water filter (400) and a water strainer (402). The water outlet (398) has a water hose (404) and a water nozzle (406). The water hose (404) is connected to a water pump (408) and the water nozzle (406) is connected to a water spray (410). The water spray (410) is directed at the piston crown (26) and the piston skirt (28). The water pump (408) is driven by a belt (412) and a pulley (414). The belt (412) is also driven by a pulley (416) on the crankshaft (18). The water pump (408) has a pump housing (418) and a pump impeller (420). The pump impeller (420) is connected to a pump shaft (422) and a pump bearing (424). The pump bearing (424) is supported by a pump housing (418) and a pump shaft (422). The pump housing (418) has a pump inlet (426) and a pump outlet (428). The pump inlet (426) is connected to a water inlet (430) and the pump outlet (428) is connected to a water outlet (432). The water inlet (430) has a water filter (434) and a water strainer (436). The water outlet (432) has a water hose (438) and a water nozzle (440). The water hose (438) is connected to a water pump (444) and the water nozzle (440) is connected to a water spray (446). The water spray (446) is directed at the piston crown (26) and the piston skirt (28). The water pump (444) is driven by a belt (448) and a pulley (450). The belt (448) is also driven by a pulley (452) on the crankshaft (18). The water pump (444) has a pump housing (454) and a pump impeller (456). The pump impeller (456) is connected to a pump shaft (458) and a pump bearing (460). The pump bearing (460) is supported by a pump housing (454) and a pump shaft (458). The pump

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FIG. 13



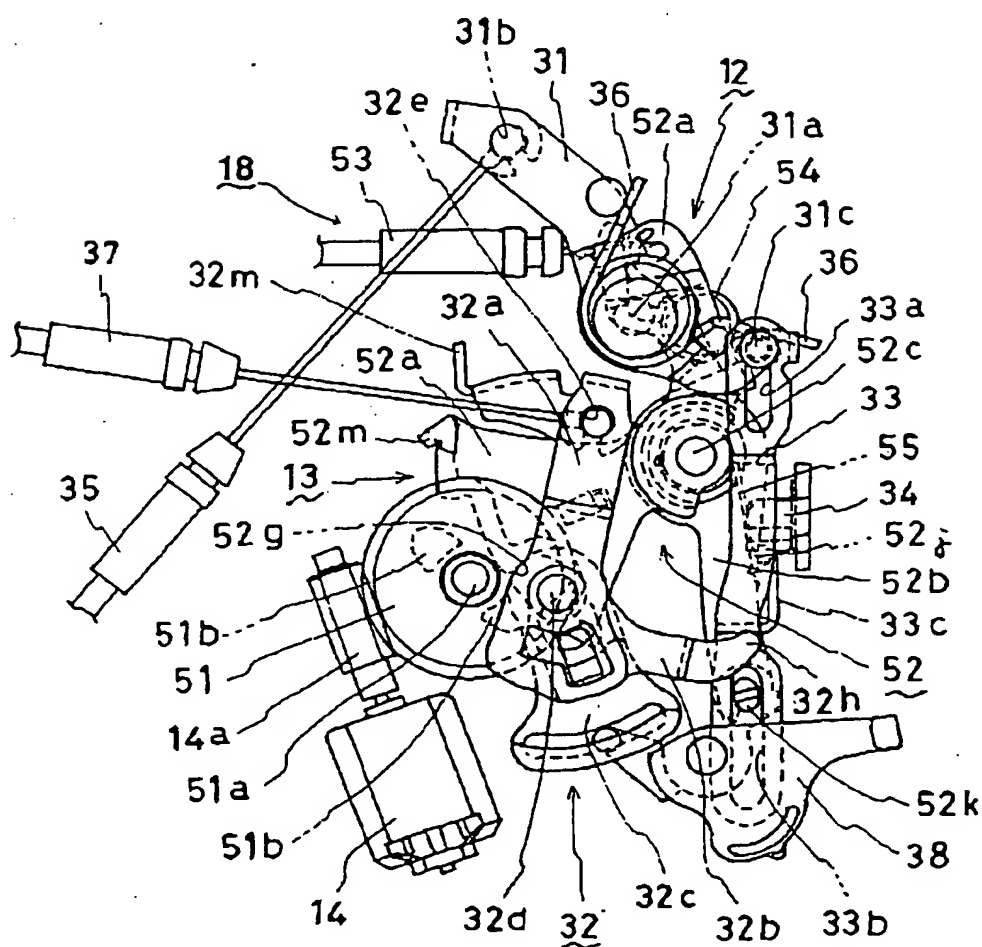


FIG. 15

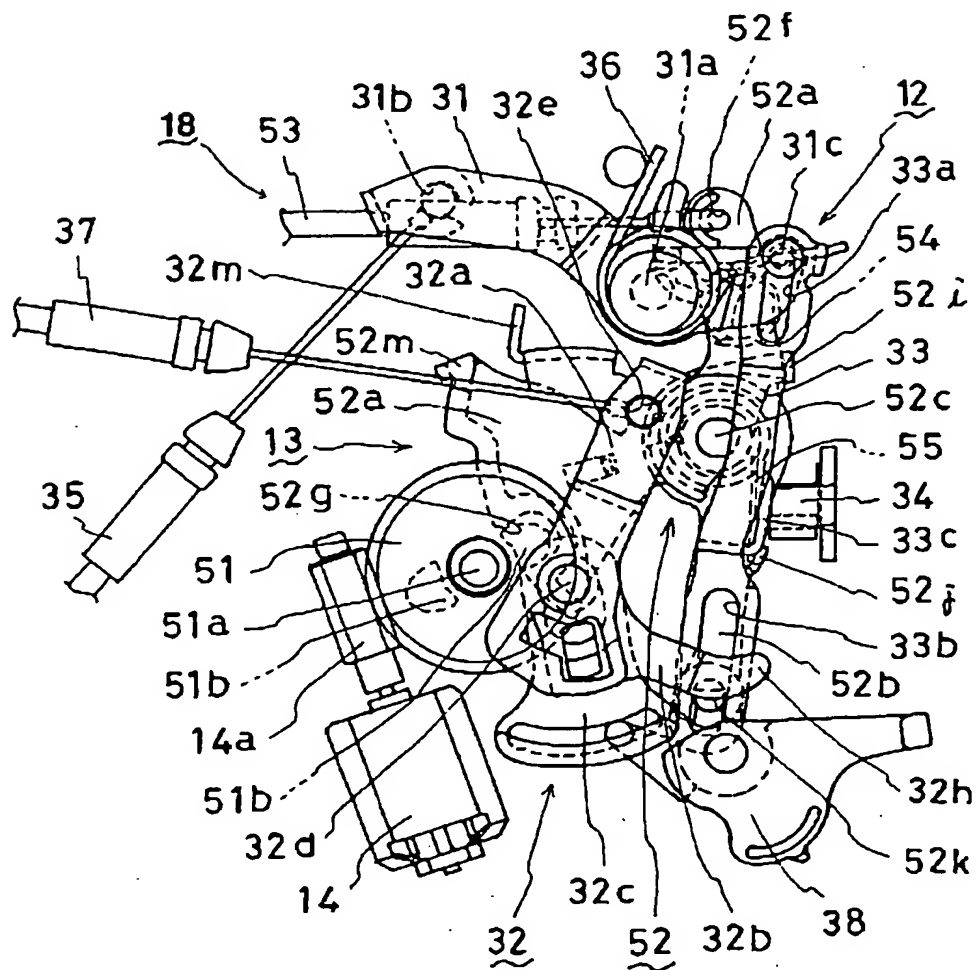


FIG. 16

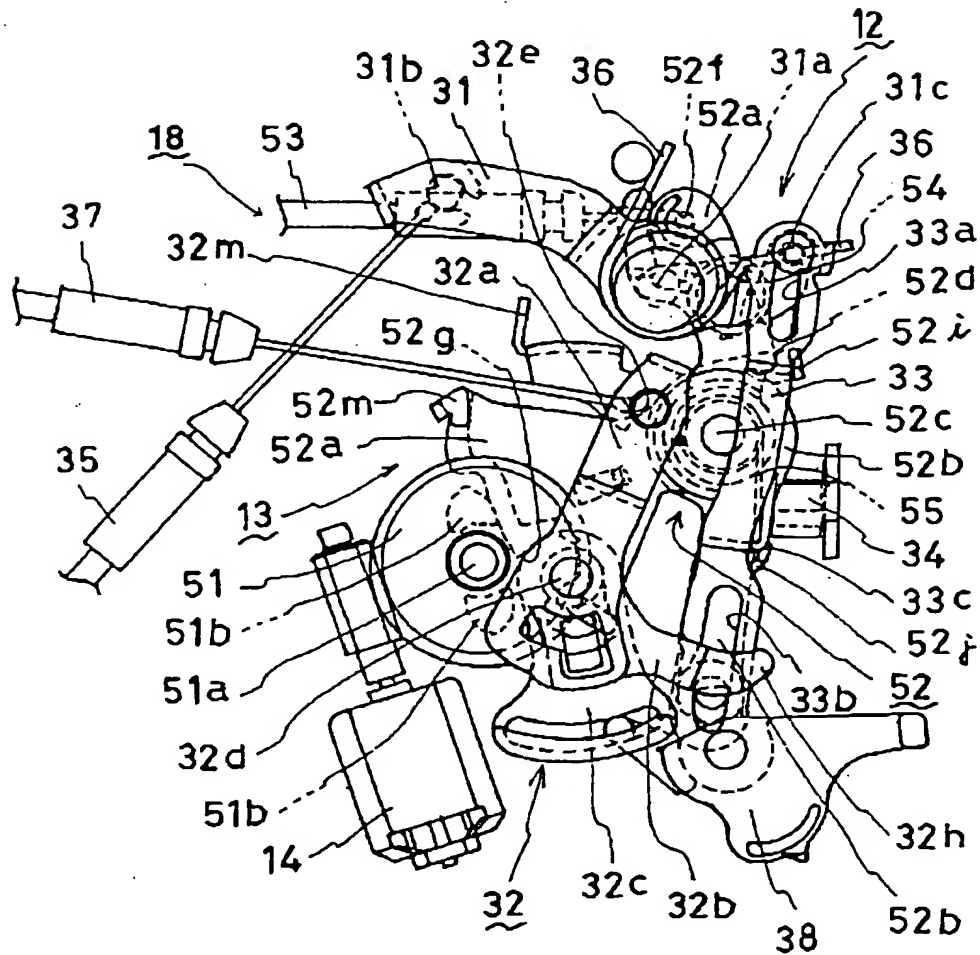


FIG. 17

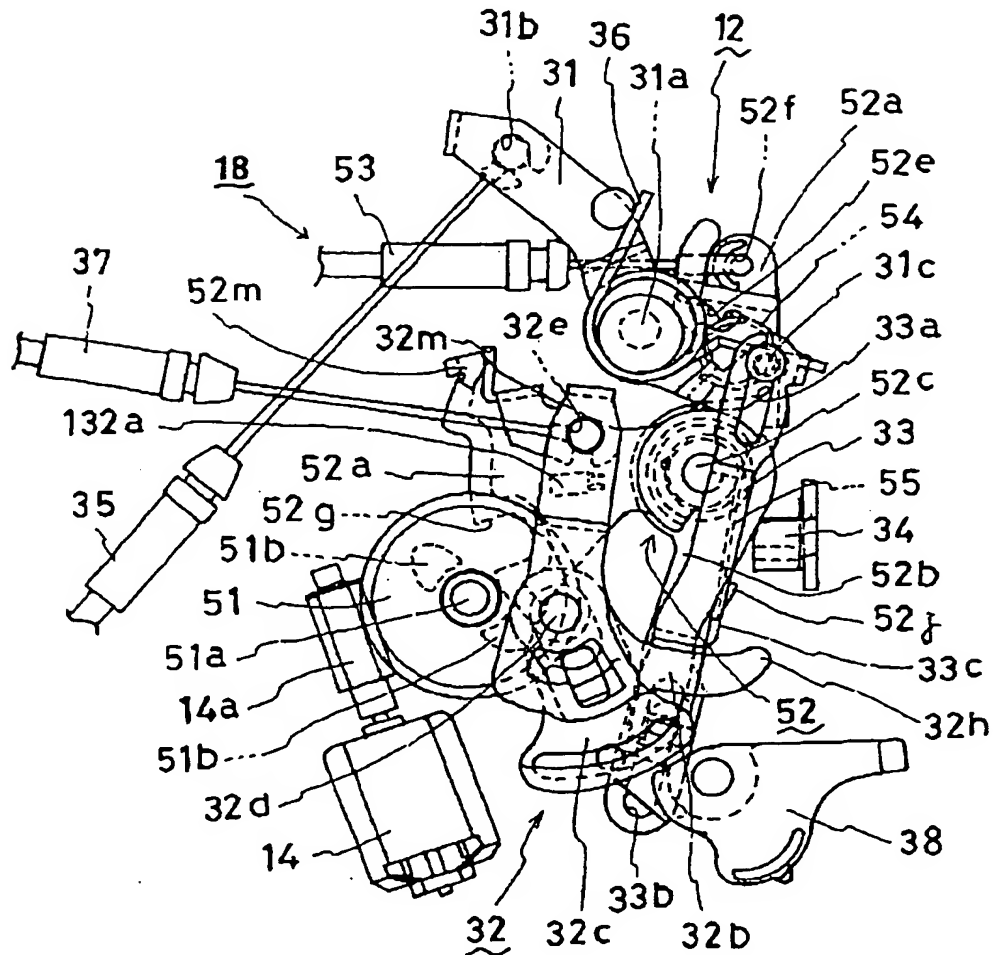




FIG. 18

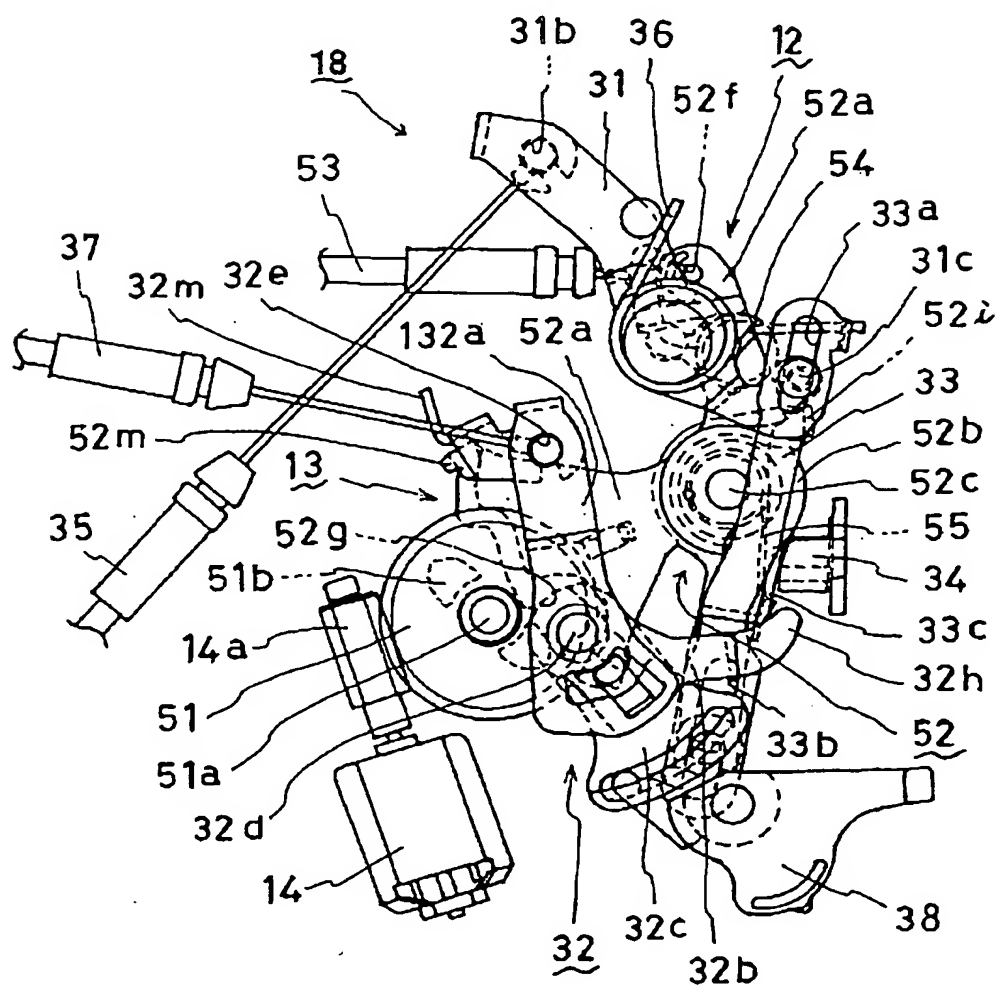


FIG. 19

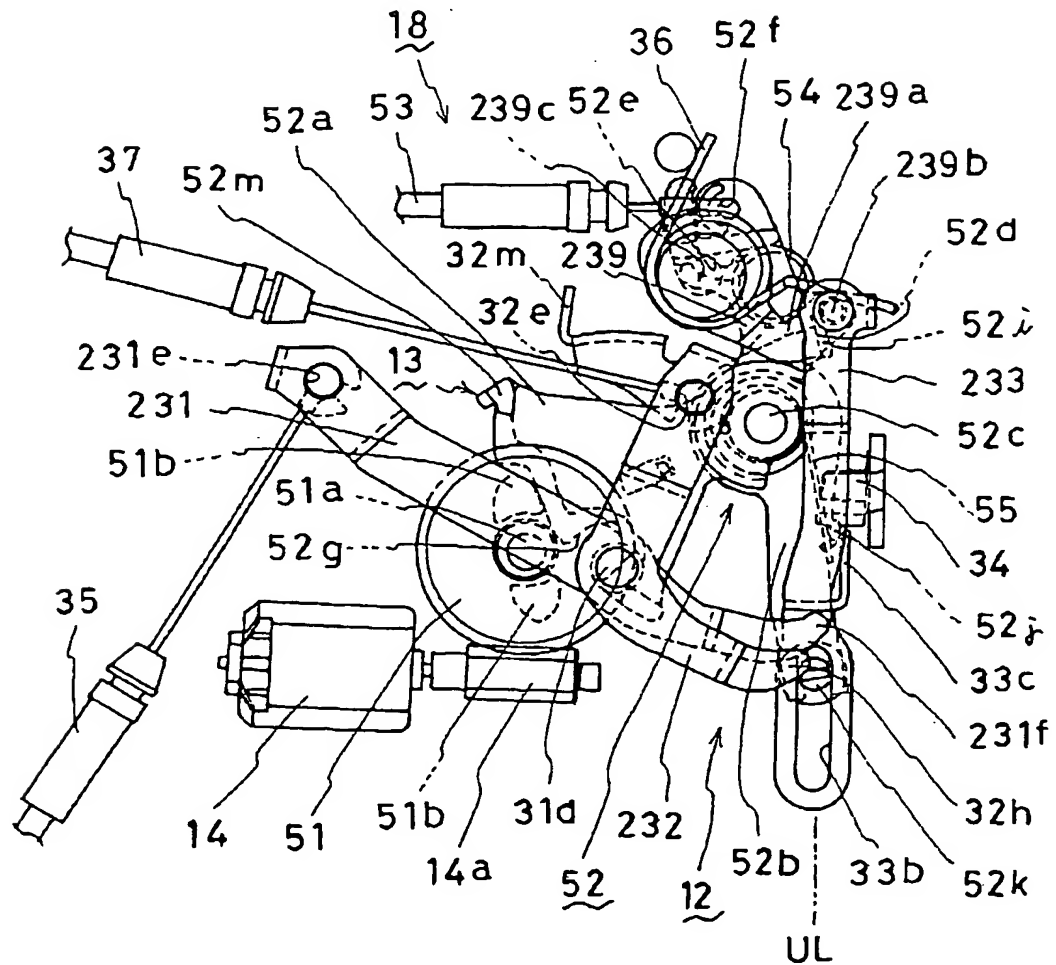


FIG. 20

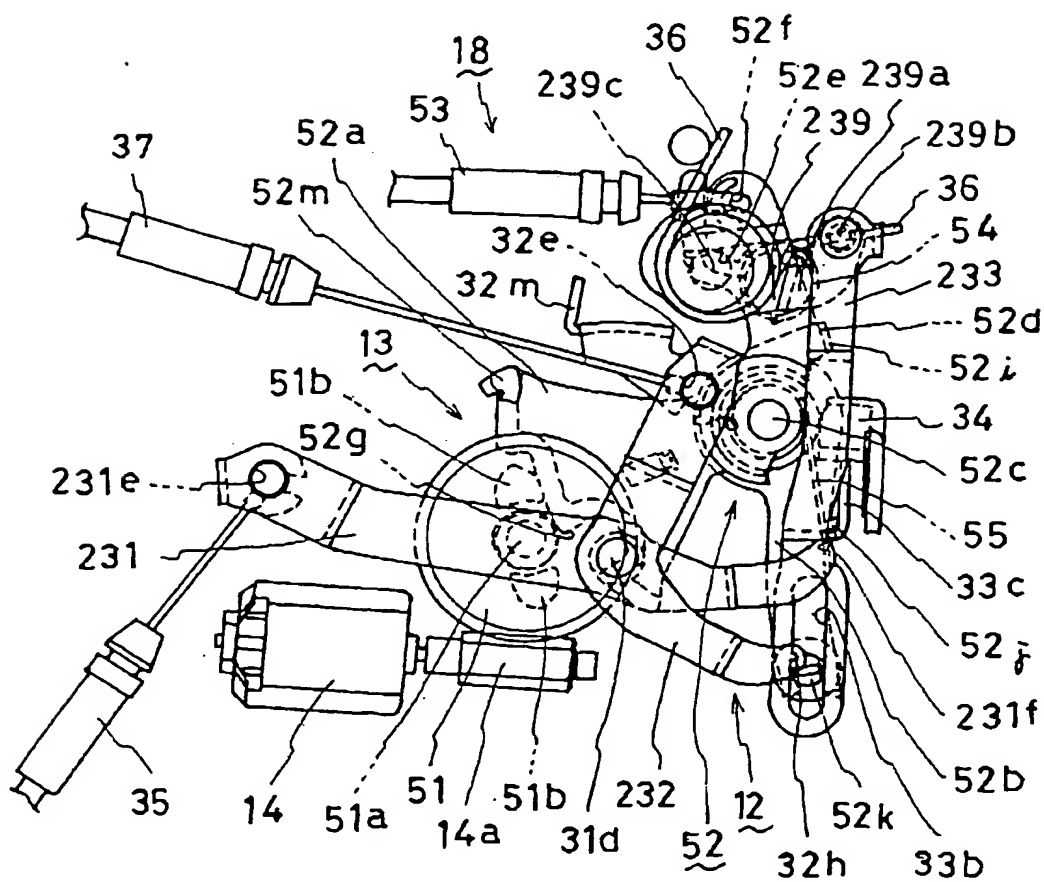


FIG. 21

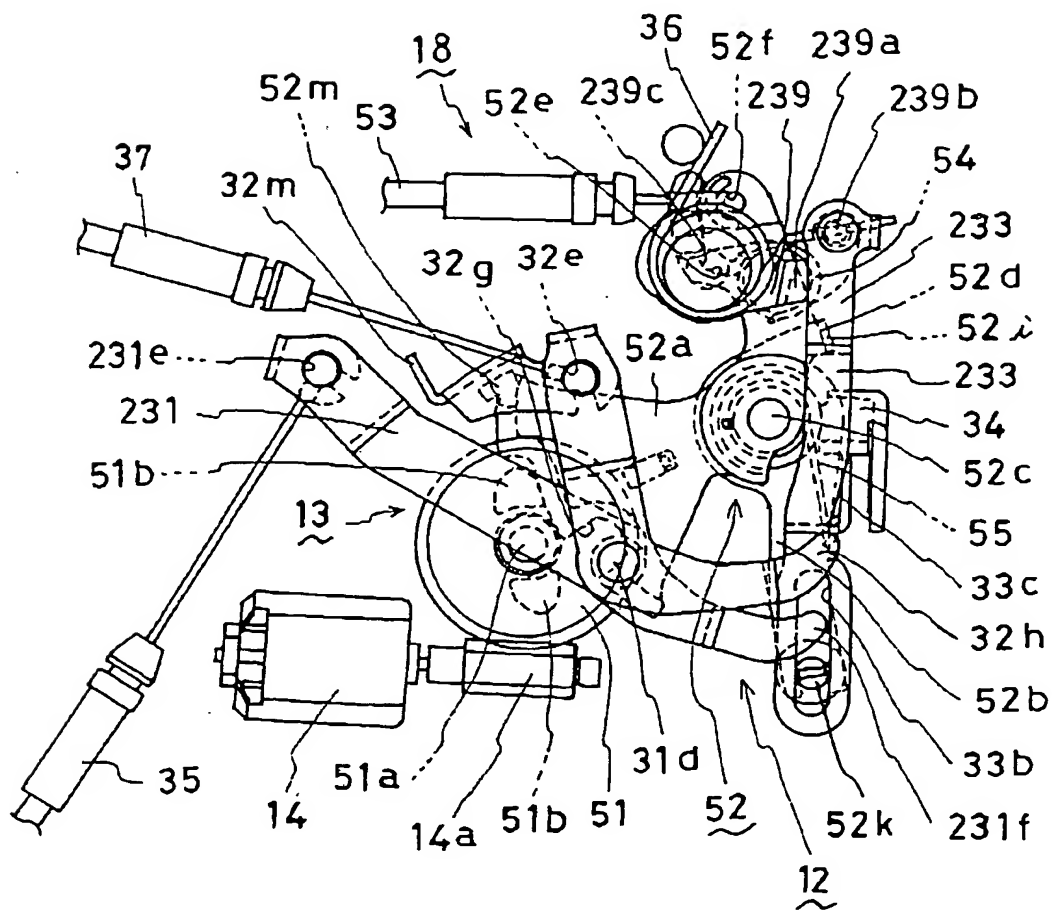


FIG. 22

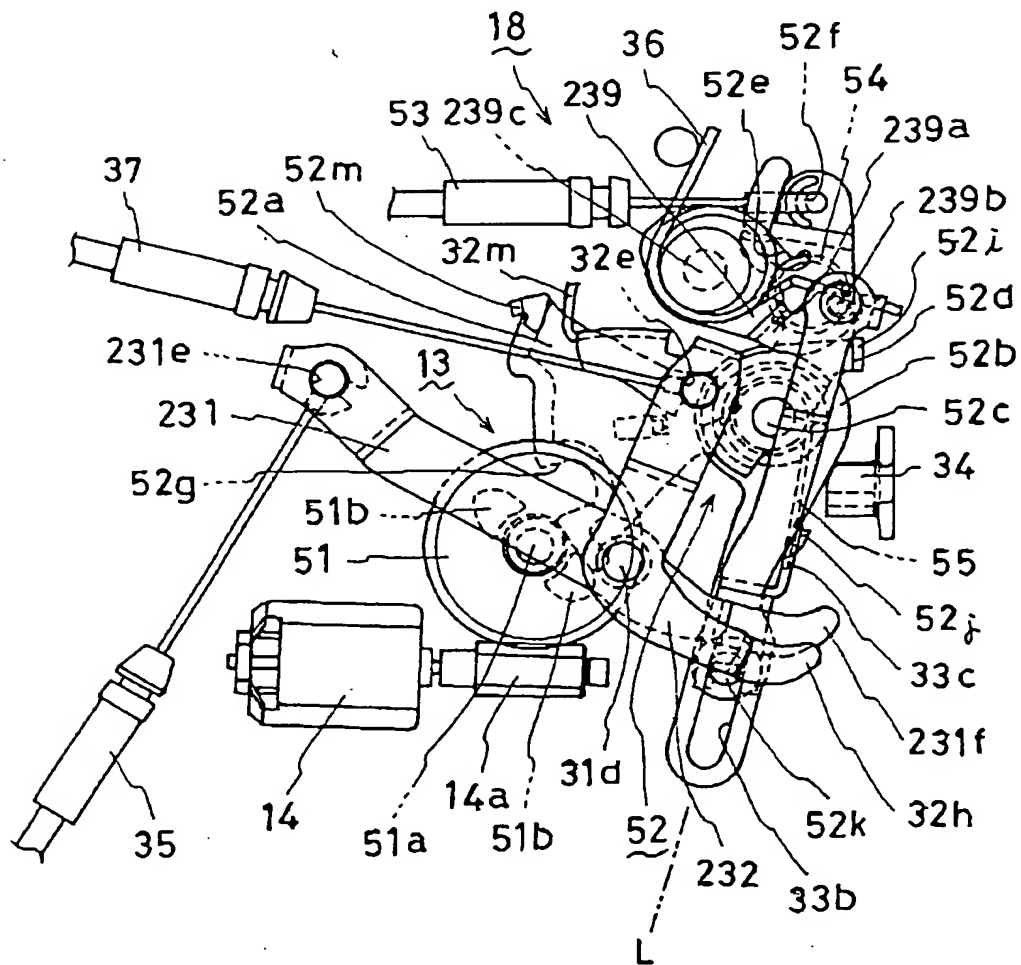


FIG. 23

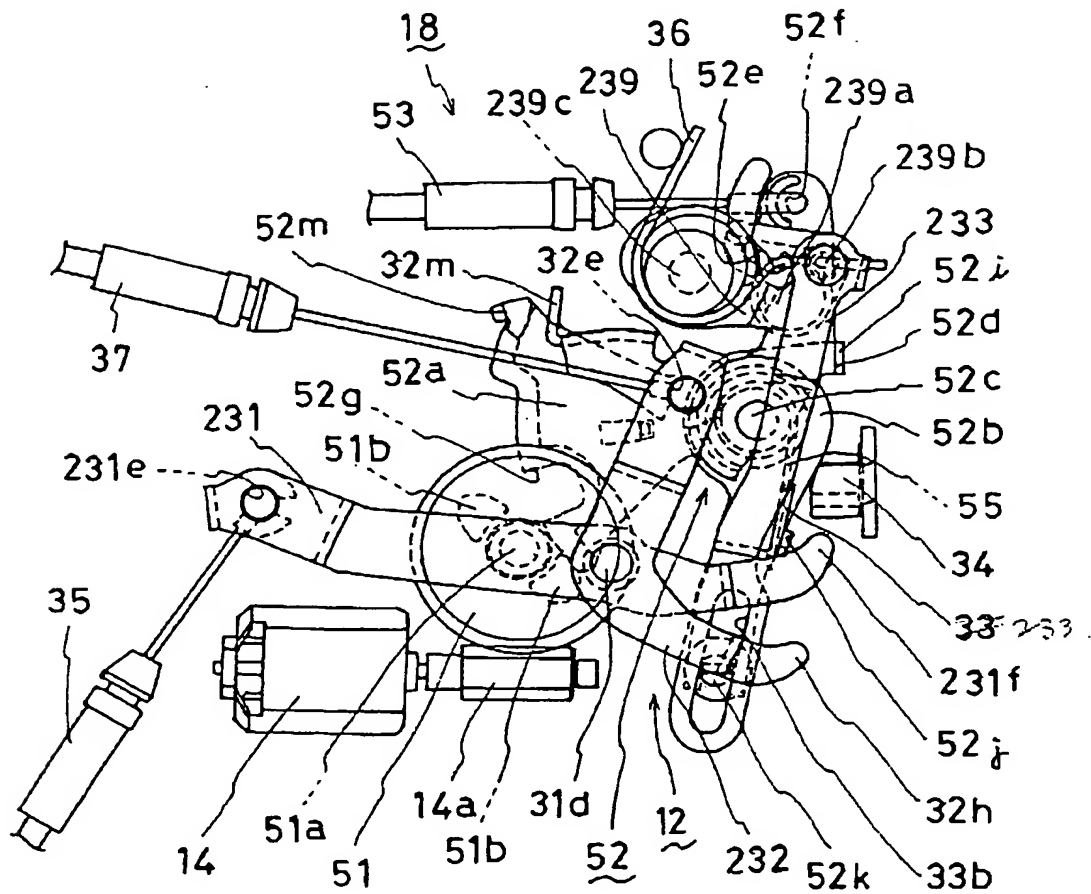


FIG. 24

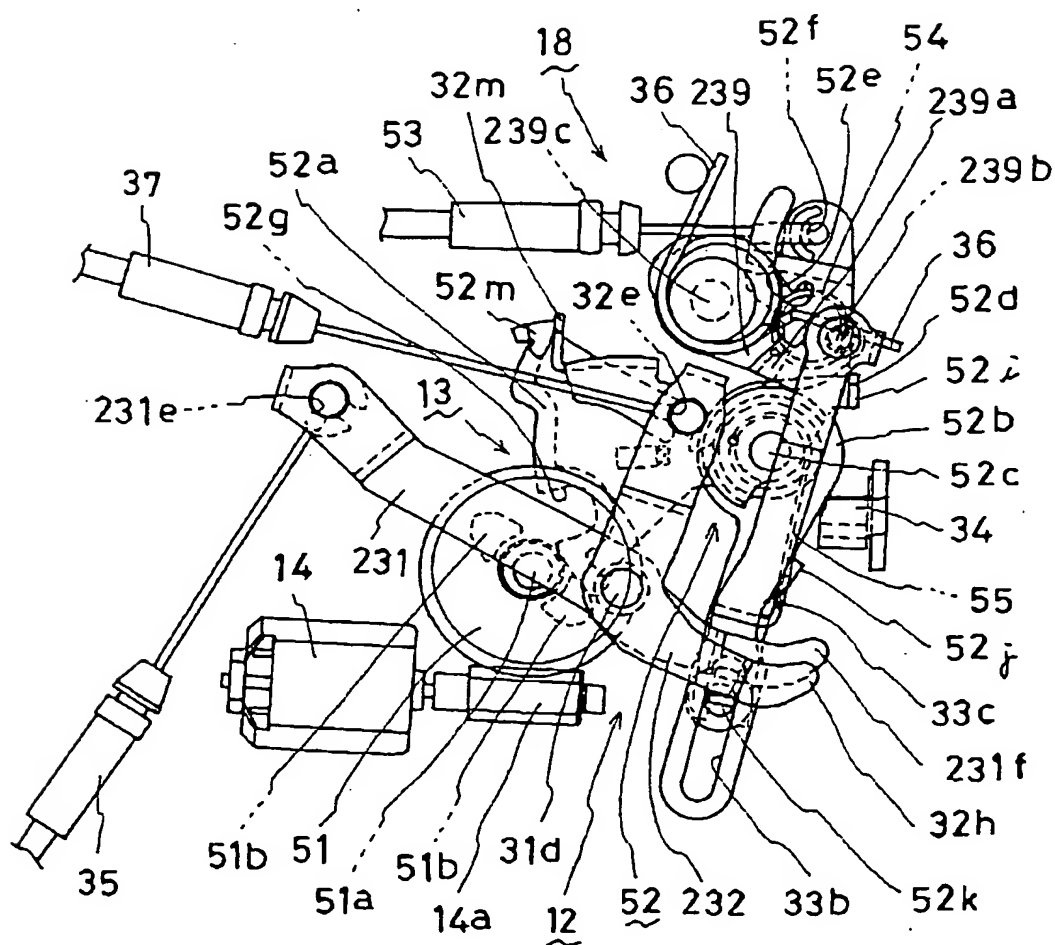


FIG. 25

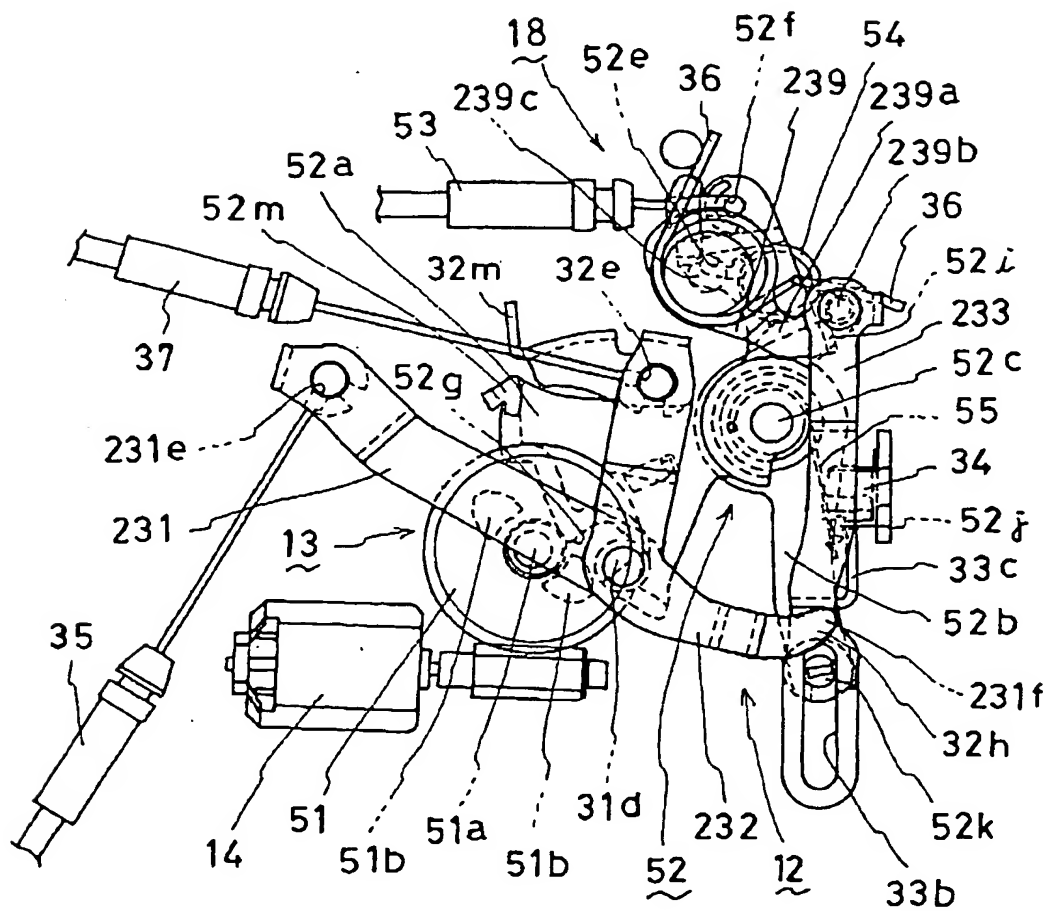




FIG. 26

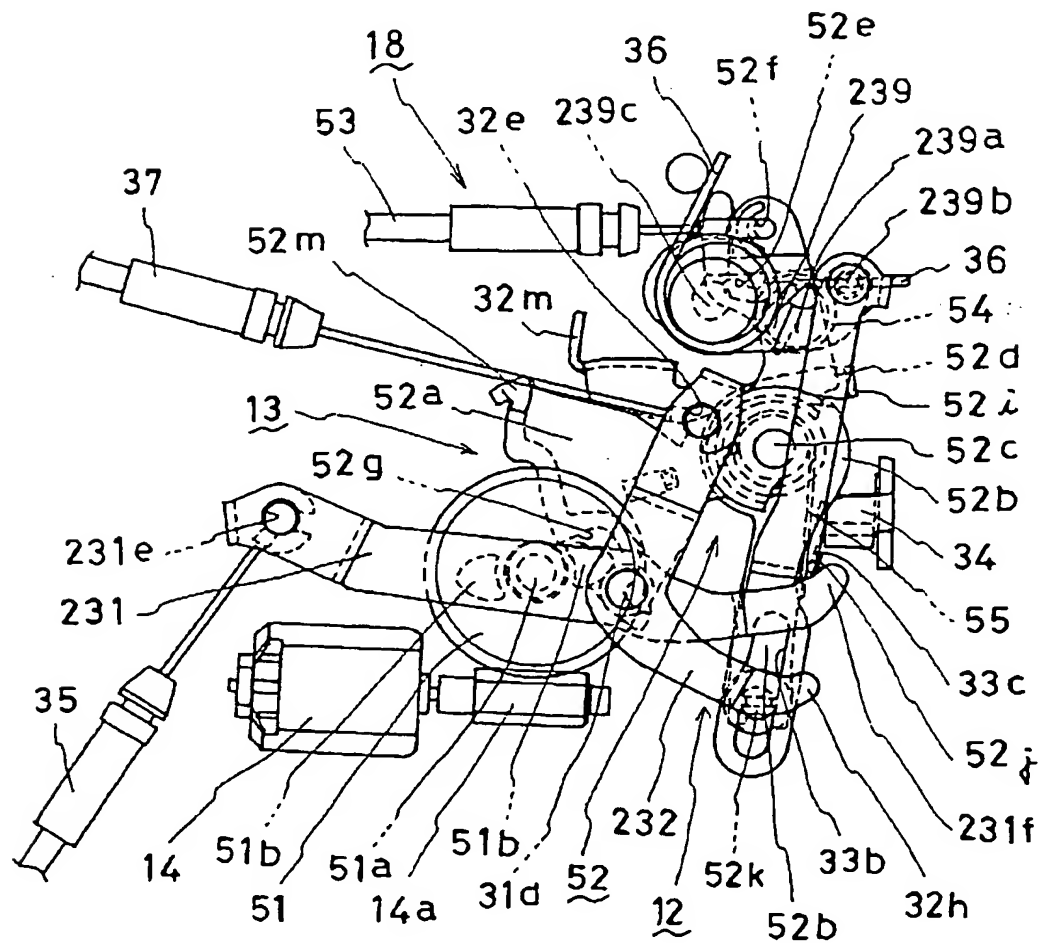


FIG. 27

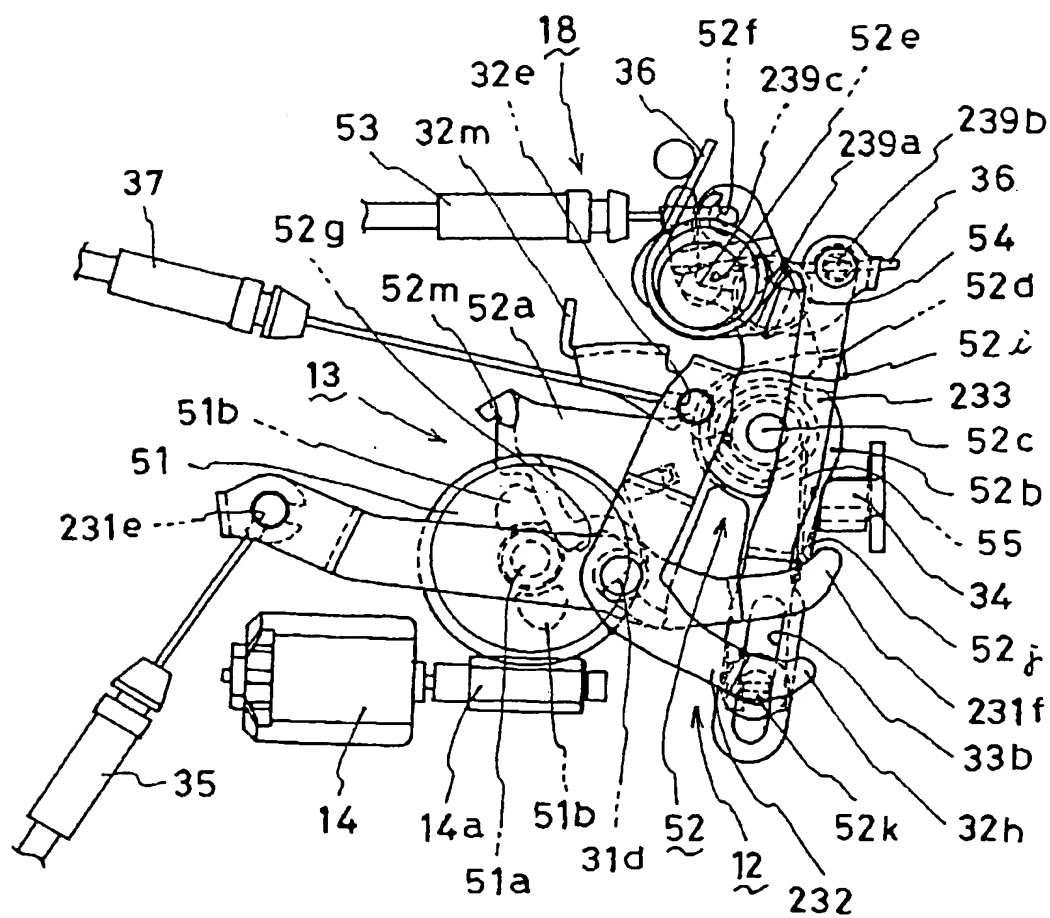




FIG. 29

